Football Match Result Prediction

Machine Learning Project | Bar-Ilan University

Executive Summary

This project applies machine learning techniques to predict football match outcomes (Home Win, Draw, Away Win) based on extensive historical match statistics. Using a structured data science pipeline and an advanced XGBoost classifier, we achieved over 99% accuracy on the test set, signaling strong model generalization and potential real-world application for sports analytics and forecasting.

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1. Introduction

This project aims to predict the outcomes of football matches using machine learning techniques. The dataset, available on Kaggle (Football Database), contains detailed statistics from matches across Europe?s top football leagues.

Each row in the dataset represents a game, enriched with over 100 features, including goals, assists, xGoals, shots, fouls, and various expected performance metrics. Our target variable is gameresult, which includes three classes: Home win (H), Draw (D), and Away win (A).

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2. Objective

The goal is to build an accurate and robust machine learning classifier to predict the match result based on historical and statistical game data. This predictive model could be used for betting support, match outcome forecasting, or team performance analysis.

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(Truncated for demonstration)